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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/593,925

07/30/2007

William Davey

23731

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535

7590

03/17/2008

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EXAMINER

KATAKAM, SUDHAKAR

ART UNIT

PAPER NUMBER

1621

MAIL DATE

DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/593,925	DAVEY ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Sudhakar Katakam	1621	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 September 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2 and 6-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 6-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Claim Objections*

1. Claims 1, 6, 9-10 are objected to because of the following informalities: The parenthetical expressions in the claims should be removed. Claims should stand alone and should not refer to the figures, such as "(stream 1)" etc. in the claims. Appropriate correction is required.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 1-2 and 6-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Devey et al** (US 7,183,326) in view of **Gieskes** (US 6,248,794).

**Devey et al** teach the simultaneous production of methanol synthesis gas, ammonia synthesis gas, carbon monoxide and carbon dioxide from natural gas. The plant units are serially arranged one by one in one single production chain, a first

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reactor A, in which the natural gas is transformed under oxygen supply into a synthesis gas mixture comprised of carbon monoxide, carbon dioxide, hydrogen and water; a second reactor B, which allows controlling the transformation of carbon monoxide into carbon dioxide, optionally a compressor C for compressing the generated gases; an absorbent D for the absorption of carbon dioxide and for obtaining the carbon monoxide-hydrogen mixture used for methanol synthesis; a low-temperature separator E, in which ammonia synthesis gas is obtained by introducing liquid nitrogen, and in which simultaneously carbon monoxide, argon and methane are removed [col. 1, lines 46-67].

The difference between the instant claims and **Devey et al** is that instant claims are further limited to production of methanol from methanol synthesis gas, ammonia from ammonia synthesis gas and urea from carbon dioxide, whereas **Devey et al** fails to teach the final step of the instant process. However, **Gieskes** cures this deficiency.

**Gieskes** teaches, in analogous process, the synthesis of methanol from methanol synthesis unit [col. 7, lines 24-42 & Fig. 7], synthesis of ammonia from ammonia synthesis unit [col. 1, lines 36-67 & Fig.4], and urea from urea from carbon dioxide [col. 1, lines 36-67 & Fig.4].

In summary, **Devey et al** teach the building blocks (syngas) for the synthesis of methanol, ammonia and carbon dioxide from natural gas, steam and oxygen. **Gieskes** teaches an analogous process in which methanol, ammonia and urea are synthesized from their corresponding synthesis gases.

Therefore, in view of explicit teachings of references, the examiner asserts that it would have been obvious to a person of ordinary skill in the art, at the time of the invention was made, to have combined the teachings of references to make the coproduction of methanol, ammonia and urea from natural gas with a reasonable expectation of success.

Modifying such methodology is prima facie obvious because an ordinary artisan would be motivated to use known integrated processes to make the process more economical or efficient, since it is within the scope to optimize the conditions through routine experimentation.

5. Claims 1-2 and 6-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Gieskes** (US 6,248,794) in view of **Vidalin** (US 6,599,491).

**Gieskes** teaches an integrated process to produce methanol, ammonia and urea from natural gas, steam and oxygen [see Fig.4 and Fig.7]. In the integrated process, to produce ammonia, hydrogen separated from synthesis gas produced in a primary and/or secondary reformer in the Fischer-Tropsch process is combined with nitrogen produced in the liquefied natural gas process. Nitrogen may also be supplied to the ammonia synthesis process from an optional air separation process, which also provides oxygen enrichment to the thermal reformer in the Fischer-Tropsch process; to produce urea, ammonia is subsequently reacted with carbon dioxide removed during the process of the gas prior to its liquefaction; in the alternative embodiment, an Fischer-Tropsch process is integrated with a methanol synthesis process wherein tail

gas from the Fischer-Tropsch reaction is used to fuel burners in a secondary thermal reformer [col. 1, lines 42-7 through col. 2, lines 1-7].

The difference between the **Gieskes** and the instant claims is that **Gieskes** fails to teach the conversion of carbon dioxide from carbon monoxide in the process. However, **Vidalin** cures this deficiency.

**Vidalin** teaches, in an analogous process, an integrated process for the preparation of methanol and ammonia from natural gas, steam, in which at least a portion of the syngas stream is diverted to an optional CO converter, wherein the carbon monoxide and water (steam) are reacted to produce hydrogen and carbon dioxide [col. 4, lines 15-54].

In summary, **Gieskes** teaches an integrated process for the synthesis of ammonia, urea and natural gas from natural gas, steam and oxygen. **Vidalin** teaches conversion of carbon monoxide to carbon dioxide in an analogous process.

Therefore, in view of explicit teachings of **Gieskes** and **Vidalin**, the examiner asserts that it would have been obvious to a person of ordinary skill in the art, at the time of the invention was made, to have combined the teachings of references to make the coproduction of methanol, ammonia and urea from natural gas with a reasonable expectation of success.

Modifying such methodology is prima facie obvious because an ordinary artisan would be motivated to use known integrated processes to make the process more economical or efficient, since it is within the scope to optimize the conditions through routine experimentation.

***Conclusion***

6. No Claim is allowed.
7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sudhakar Katakam whose telephone number is 571-272-9929. The examiner can normally be reached on M-F 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yvonne Eyler can be reached on 571-272-0871. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Sudhakar Katakam  
Patent Examiner

/Jafar Parsa/  
Primary Examiner, Art Unit 1621  
6<sup>th</sup> March 2008